PREDICTING DROPOUTS FROM AN INPATIENT ALCOHOL TREATMENT PROGRAMME

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by

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A B S T R A C T

The study attempted to predict dropouts from an inpatient alcohol treatment centre. Several measures which had previously proved useful in the prediction of dropouts were utilised (clinical ratings made by staff, a Counselling Readiness Scale, a Locus of Control Scale and a Self-efficacy questionnaire), and as well as this, self-efficacy ratings were taken weekly to monitor changes over time.

Initially (Study One), a suitable self-efficacy questionnaire was devised, then (in Study Two) the three questionnaires were administered at both admission, and then, ten to fourteen days later, at assessment, when the clinical ratings were also taken. Self-efficacy questionnaires were administered weekly for the remainder of the patient's stay.

Results show that functions derived from these scores on the self-efficacy questionnaires were more useful than any of the other measures in predicting drop-out from treatment both at admission and at assessment. This questionnaire was also useful in demonstrating changes that occurred in the patients' self-efficacy during their time in treatment. Suggestions were made concerning the future development and use of this instrument in other treatment programmes.

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1. INTRODUCTION

This thesis is concerned with the problem of early termination (dropout) from inpatient alcohol treatment programmes. This is an area of concern given the high proportion of patients who do terminate prematurely, the poorer prognosis associated with these individuals (Charnoff, Kissin & Reed, 1963, in Baekeland & Lundwall, 1975), and the cost of putting patients through treatments from which they gain minimal benefit.

Research in the area of predicting dropouts from alcohol treatment programmes prior to 1975 has been reviewed by Baekeland and Lundwall (1975) and is presented first. Papers since 1975 are then reviewed, followed by three sections including measures which have been proposed as being useful for predicting dropouts: Self-efficacy, Locus of Control and a Counselling Readiness Scale.

2. REVIEW OF THE LITERATURE

2.1 INTRODUCTION

Prematurely dropping out of treatment appears to be a universal problem. It would seem that every treatment centre (hospitals, clinics and training programmes) involved with voluntary admissions, has its share of people who terminate before they have completed the programme. Baekeland and Lundwall (1975), in their review, present statistics that indicate dropout rates can vary from 20% to 82% depending on the treatment programme being considered; they comment: "it is clear that the treatment of many chronic conditions is hampered by so many patients failing to persevere in treatment" (p. 739).

Their review covers six areas: hospital treatment of general psychiatric and tubercular patients, outpatient treatment of internal medical conditions, alcoholism, heroin addiction, general psychiatric outpatient psychotherapy, and double-blind drug studies (Table 1).

Although they noted that virtually no two studies looked at the same factors (which suggests a systematic approach was lacking), twelve clusters of variables turned up in at least ten of the studies in each area. These were: age, sex, socioeconomic status, social isolation and unaffiliation, social stability, symptom levels and symptom relief, aggressive and passive-aggressive behaviour, sociopathic features, motivation, psychological mindedness, behavioural and/or perceptual dependence, and therapists attitudes and behaviour.

TABLE ONE

SUMMARY TABLE OF VARIABLES COVERED

IN BAEKELAND AND LUNDWALL'S REVIEW

Variables	Percentage of studies finding this variable useful	Comments
AGE	31.4	The younger were more likely to dropout
SEX	44.8	Females were more likely to dropout
SOCIOECONOMIC STATUS	61.4	Those from lower socio-economic status were more likely to dropout and it was suggested that this may be attributed in part to therapists' attitudes and differing outcome expectations
SOCIAL ISOLATION AND UNAFFILIATION	100.0	The more socially isolated and unaffiliated, the more likely to dropout
SOCIAL STABILITY	48.8	The less stable were more likely to dropout. This was an especially strong predictor in alcoholic populations
SYMPTOM LEVELS AND SYMPTOM RELIEF	62.8	It was noted that in alcoholic populations the more anxious and depressed tend to dropout first
AGGRESSIVE AND PASSIVE-AGGRESSIVE BEHAVIOUR	81.8	This seems to be a particularly common personality pattern among alcoholics in whom the identification, expression and control (or overcontrol) of aggressive or hostile wishes is an especially striking clinical feature
SOCIOPATHIC FEATURES	73.7	A problem with this variable is lack of clear or standardised measurement. Still, the trend to date indicates that the more sociopathic tend to dropout of treatment

TABLE 1 (Contd.)

SUMMARY TABLE OF VARIABLES COVERED

IN BAEKELAND AND LUNDWALL'S REVIEW

Variables	Percentage of studies finding this variable useful	Comments
MOTIVATION	82.9	Although a large number of studies found this useful, again the problem of definition means its value is limited
PSYCHOLOGICAL MINDEDNESS	92.3	This variable obviously relates to a person's ability to benefit from psychotherapy and rational emotive therapy--therapies which often operate in treatment settings
BEHAVIOURAL AND/OR PERCEPTUAL DEPENDENCE	85.7	This demonstrates that an independent patient is more likely to terminate prematurely
THERAPISTS ATTITUDES AND BEHAVIOUR	100.0	Most of these studies are concerned with outpatients where a number of features have been associated with patients dropping out of treatment

The review paper also looked at methodological features of this area of study and outlines what it considers to be the requirements of a well-designed study of dropping out of treatment. These considerations may be divided into four categories: definitions, patient variables, treatment variables, and statistical considerations.

"Definitional inexplicitness has been the hallmark of most studies of dropping out of treatment" (Bac[illegible]

& Lundwall, 1975, p. 740). A dropout may include a patient who fails to return, refuses to return, or who asks not to return; a person may dropout very early in the programme, or later on. It is possible that patients dropping out at different times and/or for different reasons, will display different characteristics and for this reason clear definitions of the variables involved are necessary.

Under the heading of patient variables Baekeland and Lundwall include: referal agencies, waiting lists, any selection criterion used by the centre, as well as age, sex, race, education, and socioeconomic status of the patient and their diagnostic category. Many of these variables are not adequately described in the studies reviewed.

Another area which is important to specify, covers factors such as the content of the treatment programme, staffing and admission procedures, and how patients are assigned to counsellors. These factors may all play a part in the length of time any one patient chooses to remain in treatment.

Lastly there are the statistical considerations. There was often a lack of adequate clarification of significance limits and procedures in these studies. All these factors combined made comparisons and replications of these studies very difficult.

Of particular relevance to this thesis is Baekeland and Lundwall's (1975) section on dropout from alcohol

treatment programmes where several pertinent studies are reviewed.

In a study by Baekeland, Lundwall and Shanahan (1973), one hundred and forty three patients were assessed on the Zung Depression Inventory, the Cattell Anxiety Scale and the Cornell Index. As well as this, demographic variables, and information concerning drinking patterns, social environment and motivation were assessed. Dropouts were classified into three categories: immediate dropouts (those who failed to return after the first visit), rapid dropouts (those who dropped out after one to four weeks of treatment), and slow dropouts (those who dropped out during the second to fifth month of treatment). Those who were seen as completers attended for six months or more and comprised only 26.6% of patients. The following features were found to be correlated with the various groups:

1) Immediate dropouts: more likely to live alone and had suffered least impairment of their capacity. They were ambivalent about starting treatment, anxious, depressed and were drinking on admission.
2) Rapid dropouts: had high levels of anxiety and depression and also featured somatic and psychosomatic symptoms.
3) Slow dropouts: had lower levels of education and were likely to have alcoholic relatives.
4) Completers: highly motivated, socially intact and with no family history of alcoholism.

Two other studies (Kissin, Rosenblatt & Machover, 1968; Pisani & Motansky, 1970; all in Baekeland & Lundwall, 1975) also found socioeconomic status, or factors related to it, to be associated with dropout from treatment.

Two studies noted that dropouts were more defensive than programme completers (Mozdzierz, Macchitelli, Conway & Krauss, 1975; Nelson & Hoffman, 1972; all in Baekeland & Lundwall, 1975). Nelson and Hoffman (1972) hypothesised "that early terminators have as many problems as the remainers, although they do not admit to it because of their increased use of repression and defensiveness" (p. 950).

In a 90-day alcoholism rehabilitation and treatment programme (which relied heavily on group psychotherapy) tests which enhanced an opportunity for self-disclosure were found to be more effective than either intellectual or cognitive tests in determining dropouts (Wilkinson, Prado, Williams & Schnadt, 1971). Neither the Minnesota Multiphasic Personality Inventory (MMPI), the Shipley-Hartford, the Allport-Vernon Scale of Values, the Kuder Preference Record nor the Edwards Personal Preference Schedule (EPPS) were useful in differentiating between groups in this study. Results suggested that the dropout was more hostile and aggressive, less mature, responsible and emotionally controlled, had less self-esteem, more self-doubt, and was more socially dependent while still being more socially isolated and unaffiliated than the completer. Another paper (Miller, Pokorny & Hanson, 1968;

in Baekeland & Lundwall, 1975) also studied a 90-day programme and found similar results.

In summary of this section Baekeland and Lundwall (1975) state:

> The alcoholic who drops out of an inpatient treatment program seems to be one who is in a more advanced stage of alcoholism, has more passive-aggressive and psychopathic features, depends on alcohol for release of feelings of resentment, anxiety or depression, and finds it difficult to form close relationships. (p. 750)

The final conclusion in their review was that there are three groups of inter-related variables that can be used to predict the likelihood of someone dropping out, these are: (1) intrapsychic factors (i.e. demographic, clinical and personality style), (2) therapists factors (i.e. personality, attitudes and therapeutic style), (3) environmental factors (i.e. family attitudes towards treatment, transportation problems, financial difficulties and treatment situations).

In the past dropouts from treatment programmes have been seen as treatment failures and it has been assumed that they obtained no benefit from the programme. A paper by Silverman and Beech (1979) entitled "Are Dropouts, Dropouts?" involved a follow-up study of forty seven clients who failed to appear for their second appointments at a community mental health centre. They concluded that almost 80% of the clients reported that

their problems had improved. They suggest that the term 'dropout' should not be seen as synonymous with 'failure'. However, it seems that this finding does not apply in the field of alcohol treatment. Among alcoholics in both inpatient and outpatient settings, dropouts have a poorer prognosis than programme completers. Charnoff, Kissin and Reed (1963, in Baekeland & Lundwall, 1975) found alcoholics were unlikely to maintain improvements if they terminated treatment before maintaining at least six months of abstinence. It seems that the prognosis for an alcoholic improves as the time spent abstinent increases. Gerard and Saenger (1959, in Baekeland & Lundwall, 1975) found that in outpatients one year of abstinence was subsequently maintained in 80% of cases. Therefore it seems particularly important, in the field of alcohol treatment, to find any variables that might assist in predicting which patients are likely to drop out of the programme. This would then enable the programme to be restructured to maximise the time a potential dropout spends in treatment.

In recent years several studies have looked at which variables might be useful predictors. A wide range of variables have been investigated and these can be categorised generally into two groups: intra-psychic and therapist variables. These will be covered in the following sections.

INTRAPSYCHIC VARIABLES

Demographic Variables

Studies have looked at the role of demographic variables in conjunction with dropping out of treatment. In these, the term demographic variables has been used to cover a variety of factors ranging from age, sex, socioeconomic status and education, through to medical, historical and familial information. Frequently significant correlations are found between the dropout and completer groups on these variables (as noted by Baekeland & Lundwall, 1975) yet the usefulness of these variables alone in predicting dropouts has not been established.

It would seem that only one study since 1975 has considered only demographic and information variables in its attempt to predict dropouts from treatment. Keil and Esters (1982) sought to develop an equation to predict short, medium and long stay patients. They collected information of a large number of factors including: recent work history, drink related driving offences, alcohol usage and onset, previous treatments, reasons for entering present treatment, medication, age and others. In summary they found a general increase in the number of social resources held by the individual and contained within the individual's ecological environment as one moved from dropouts, through partial successes, to complete successes.

As in many of the studies reviewed by Baekeland

and Lundwall (1975) they were able to find a correlation (or trend) but not a predictor. Most studies since 1975 have chosen to combine demographic information with other measures in an attempt to find a way of predicting dropouts from treatment. These are covered in following sections.

Mood Variables

Two studies have looked at clients moods, in alcohol treatment programmes, and how they relate to dropout rate. One (Freed, Riley & Ornstein, 1977) took mood ratings at the beginning and end of treatment and found that the subjects initial mood scores were not useful in predicting outcome of treatment, but that the mood ratings of completers were noticeably better than they had been at admission. The other study by Ravensborg (1973) was also interested in differentiating completers from noncompleters by assessing the patients mood at admission. They used the Clyde Mood Scale and found that completers differed from early terminators in that they were more downhearted, less good-natured, more restless and more worn-out, however they were unwilling to draw any general conclusions as their findings contradicted some earlier ones (Nelson & Hoffman, 1972), but suggested "Further study of tension and fatigue in alcoholic patients, as predictors of response to programmes, is indicated" (p. 1294).

Cognitive Variables

Hester, Smith and Jackson (1981) are a group that has

looked at the influence of deficits in alcoholics' cognitive skills on failure to complete treatment. They assessed thirty eight patients using the Category Test of the Halstead-Reitan battery and although their findings were not statistically significant, the mean score for completers was higher than that of terminators. Further research is needed in this area before any general conclusions may be reached.

Personality Variables

Many studies have endeavoured to find a relationship between personality variables and dropout from treatment programmes but few have considered only personality variables in their studies.

Hague, Donovan and O'Leary (1976) using a variety of personality measures (the Minnesota Multiphasic Personality Inventory (MMPI); the Shipley Institute of Living Scale; the Cornell Index; the Group Embedded Figures Test; the Locus of Control Scale; and the Defense Mechanism Inventory) found no significant differences between the personalities of dropouts and completers among inpatient alcoholics.

Several investigators looking at the usefulness of personality measures in predicting dropout have used the MMPI alone for this purpose. Krasnoff (1977) and McWilliams and Brown (1977) both failed to find any significant differences between completers and dropouts on this measure, while some earlier studies (e.g. Hoffmann & Jansen, 1973) did get some significant findings. They reported that patients who had been given

ally discharged, involuntarily committed patients who eloped, and voluntary patients who eloped, scored significantly higher on the L. K and Ma scales, respectively.

A review of further studies using this measure may be found in Mrad and Krasnoff (1976), and also in Schroeder, Bowen and Twemlow (1982). It is clear from these reviews that no significant results have been consistently found using the MMPI.

> It seems unavoidable to conclude that the personality dimensions alone, ... are not sufficient to predict which alcoholics will discontinue treatment. A complex of purely situational determinants may indeed explain the dropout phenomena, but a more likely hypothesis is that the patient attrition is a consequence of an interaction between the situation and the personality domains. Before the equation for the prediction of dropouts can be written, much more needs to be learned about the situational complexities of inpatient treatment for alcoholism. (Gross & Nerviano, 1973, p. 515)

Multiple Measures

In an effort to predict how long drug abusers or alcoholics would remain in treatment, Altman, Evenson and Dong (1978) used several measures including part of the Missouri Automated Mental Status Examination, the Emergency Room Admission Checklist and several demographic variables. They concluded that the following factors

indicative of dropout from an alcohol treatment programme: involuntary admission, admission while intoxicated, hostility, denial, unemployment, younger age, and having a spouse or someone else to live with.

Cummings (1977) also used a combination of demographic and psychological information in his study of alcoholics in treatment. He concluded that: "Both the Psychological Screening Inventory and the FIRO-B [Fundamental Interpersonal Relations Orientation - Behaviour] appear to be useful short psychological evaluation instruments to be used in alcohol treatment programs, in order to discover as early as possible the potential dropout" (p. 155). Yet he acknowledges that these findings may not be true for populations other than the one studied. This problem of generalization would appear to be a common one in this field.

Krasnoff (1976) used a sample of sixty two male inpatient alcoholics in his study which attempted to find factors which differentiated dropouts from completers. He employed the following measures: MMPI, Rotter's Internal-External Control Scale (I-E), the Marlowe-Crowne Social Desirability Scale, and a measure of favourable attitudes toward drinking. Results indicated that several individual scales (including the L scale of the MMPI) yielded a significant difference between dropouts and completers. This suggested that completers represented themselves in a more socially desirable way, had a greater need for approval, and were

more highly motivated to remain abstinent than were dropouts. Yet it is not possible to conclude these factors are accurate predictors of dropout given the conflicting results in other studies.

Linn (1978) conducted a study to look at the effect of age on dropout in an inpatient treatment unit. The data that was collected included: demographic and background data, scores on tests to measure symptoms, mood and attitudes (Hopkins Symptom Checklist, a mood rating scale, and six Semantic Differentials), they found that older alcoholics were more likely to remain in treatment. However, it appears that the personal relationships on the ward between staff and patients are particularly important to the older alcoholics who appear more vulnerable to feelings such as rejection, and it is likely to be these types of feelings which cause the older alcoholics to dropout.

As reviewed earlier, Hester et al. (1981) found that level of cognitive skills barely differentiated between groups. O'Leary, Fauria, Calsyn and Pehrenbach (1981) combined cognitive assessment with other procedures in their study of alcoholic dropouts. The assessment of seventy eight male alcoholics in an inpatient unit was carried out using the Clinical Analysis Questionnaire (CAQ), the MMPI, and the Group Embedded Figures Test (GEFT). A relationship was found between cognitive style and personality characteristics, but no relationship was indicated between cognitive style and attrition.

In a study by Roessler and Boone (1979) neither

demographic variables, intelligence, achievement levels, problems in receiving rehabilitation centre services, nor perceptions of the rehabilitation centre environment distinguished between completers and dropouts.

THERAPIST VARIABLES

Baekeland and Lundwall (1975) list therapist variables as one group of variables that can be used to predict dropout from treatment. Studies since 1975 that have examined these variables include: Betz and Shullman (1979), Epperson (1981), Fiester and Rudestam (1975), Karasu, Stein and Charles (1979), Proctor and Rosen (1981), and Stone, Blaze and Bozzuto (1980), however, only one study (Bowen & Twemlow, 1978) has looked at this group of variables in the field of alcohol treatment.

They noted that patient dropout rates showed variations over time. On looking into this, an association between staff absence and dropout was found. "The alcoholic often seems to have a peculiar sensitivity to abandonment and may perceive an inadequately discussed absence as rejection." (p. 367) In discussing the implications of this they offer two alternatives; either an effort may be made to prepare those concerned prior to a staff member's absence, or it may be useful to use the situation therapeutically to illustrate a reality of life--that significant people may not always be present.

The extent to which many therapist variables may be manipulated or controlled is, however, limited, due to

practical and economic reasons (e.g. providing therapists of differing ages, socioeconomic status and races).

CONCLUSION

These studies have covered only two of the three areas proposed as being useful as predictors of dropout by Baekeland and Lundwall (1975). Neither the studies looking at intrapsychic factors, nor the paper investigating therapist variables have been able to put forward any conclusive methods by which to predict dropouts from treatment.

Their third group of factors (environmental factors) has been generally neglected by researchers.

2.2 SELF-EFFICACY

Self-efficacy (Bandura, 1977) has proved useful for predicting treatment outcome in a number of treatment areas, for example: smoking (DiClemente, 1981; Condiotte & Lichtenstein, 1981; McIntyre, Mermelstein & Lichtenstein, 1980; all in Bandura, 1982), phobias (Bandura & Adams, 1977; Katz, Stout, Taylor, Horne & Agras, 1981; Biran & Wilson, 1981; all in Bandura, 1982), anxiety (Kendrick, Craig, Lawson & Davidson, 1981; in Bandura, 1982), and weight loss (Chambliss & Murray, 1979). It will be used here to try to predict dropouts from an alcohol treatment programme.

Literature concerning self-efficacy will be

reviewed in the following section.

Albert Bandura has developed a theory of personality which stresses the complex learning of which humans are capable (Bavelas, 1978). Bandura is concerned with integrating cognitive capacity and higher mental processes in a theory of personality development. His theory has three major emphases:

i) Observational learning, as opposed to learning from direct experience

ii) Cognitive and symbolic processes, as opposed to stimulus response behaviourism

iii) Self-regulation in addition to external regulation of behaviour by reinforcement

Bandura rejects a one-way influence, either of internal factors or of external ones. His theory is based on reciprocal determinism:

> Behaviour partly creates the environment and the resultant environment, in turn, influences the behaviour. In this two-way causal process the environment is just as influencable as the behaviour it controls (1971, p. 40).

Self-efficacy theory was first proposed by Bandura in 1977. At this time he noted that there was an apparent divergence of theoretical and practical views concerning the acquisition, regulation and alteration of behaviour. While behaviourally based treatment methods were proving the most useful in altering behaviour, theoretically more emphasis was being placed on the cognitive mediation

of the behaviour change process.

The theory assumes various techniques of behaviour change operate by creating and strengthening expectations of personal efficacy (Bandura, 1977). Two types of expectations form the basis for the theory, these are: efficacy expectations and outcome expectations. An efficacy expectation is a person's conviction that they can successfully execute the behaviour required to produce the desired outcome, while an outcome expectation is a person's estimation that performing a given behaviour will lead to a certain outcome (Bandura, 1977).

Therefore, a person may judge the outcome expectations of a certain behaviour to be very favourable, but without the appropriate skills to perform that activity (i.e. suitable efficacy expectations) such information will not influence their behaviour.

Efficacy expectations are said to vary on three dimensions--magnitude, generality and strength, and are established and altered by four principal sources of information; these are:

i) Performance accomplishments
ii) Vicarious experience
iii) Verbal persuasion
iv) Physiological states

The resulting estimation of personal efficacy in a given situation is said to determine "whether coping behaviour will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences" (Bandura, 1977, p. 191).

A study concerned with verifying this claim was performed by Weinberg, Gould and Jackson (1979). Their findings (using a muscular endurance task) supported the claim; those with higher self-efficacy were more persistent, even after initial failure.

Further support for the theory comes from a study by Bandura and Adams (1977). Three groups of snake phobics were treated with either enactive mastery, vicarious experience, or systematic desensitization. They found that efficacy expectations predicted with considerable accuracy the level of performance regardless of which treatment procedure was used to alter these efficacy expectations. The theory is also of value as it can account for behavioural variations displayed by individuals receiving the same type of treatment, and to predict performance success in individual tasks during and after treatment (Bandura, 1977).

Rollnick and Heather (1982) discuss Bandura's Self-efficacy Theory with relation to an abstinence-orientated programme for alcoholics. They point out that the outcome expectation to be established in this case is abstinence, while the efficacy expectations are concerned with the process of achieving and sustaining that outcome. In most cases these expectations are dealt with by a single therapeutic approach, not by two separate ones. It is suggested that lack of patient motivation may be due not to a global problem, but to the patient having a different conceptualization of what serves for them as an appropriate outcome expectation. They go on to suggest that early discussion

and clarification of this point with the patient may aid progress and motivation in treatment. Unfortunately, Bandura has never attempted to measure outcome expectations in any of his studies with snake phobics, yet this could be a useful measurement for use in alcohol treatment programmes.

Bandura has postulated self-efficacy theory not only as a cognitive mechanism to explain behaviour change but also to predict it. Up until this time the only estimate of future performance that was available was past performance; but self-efficacy has proved itself to be more useful in this regard (Bandura, 1982; Bandura & Adams, 1977; DiClemente, 1981). Bandura (1980) notes "efficacy judgements serve as even better predictors of specific actions and level of fear arousal when strength of self-efficacy is taken into consideration" (p. 267).

DiClemente has looked at self-efficacy in the field of smoking cessation. In his 1981 article he noted that those subjects who did not return to smoking during the follow-up, did not differ from recidivists on any of the demographic or smoking history variables that were collected, but did show significantly higher self-efficacy scores. The data in this study was collected an average of four weeks after the subject had quit smoking.

Self-efficacy has also been examined during the course of treatment. If treatment serves to create and strengthen expectations of personal efficacy as stated, then this change should be detectable in analysis. Bandura used microanalysis to discern that self-efficacy

did increase over time, and that this increase parallelled the overt behavioural changes displayed (Bandura, 1982).

DiClemente and Prochaska (1981), in a similar study, examined both confidence and temptation ratings of self-efficacy and noted that 'long-term quitters' had the lowest level of temptation and the highest level of self-efficacy. It was also noted that "self-efficacy ratings appear to be relatively independent of other subject characteristics" (p. 8), which suggests that a complex self-evaluation process is involved in rating oneself on these questionnaires.

Further studies have examined self-efficacy in relation to relapse. Bandura (1982) noted that as a person's perceived inefficacy increases, so, too, does their vulnerability to relapse. In a study of smoking cessation, which was microanalysed by Condiotte and Lichtenstein (1981), it was found that "perceived self-regulatory efficacy predicted months later which participants would relapse, how soon they would relapse, and even the specific situations in which they experienced their first slip" (p. 656).

Given this theoretical and experimental information it would seem that self-efficacy would be a useful construct to consider in predicting outcome status (e.g. early termination, late termination or completers) from an alcohol treatment programme, and also in monitoring progress during treatment.

2.3 LOCUS OF CONTROL

In reviewing Bandura's Self-Efficacy Theory it was noted that this theory arose out of the larger body of literature known as social learning theory. Locus of control is yet another aspect of this larger theory.

> Social learning theory holds that perceived locus of control is one of two components of control orientation, the other component being experience of control or self-efficacy. (Donovan & O'Leary, 1979, p. 488)

According to a cognitive social learning model of behaviour, it is thought that alcoholics learn to drink in order to cope with situations over which they see themselves as having little or no control (O'Leary, O'Leary & Donovan, 1976). This social learning model of behaviour implies that people differ with respect to control orientation, one of whose components may be measured by a locus of control scale.

Rotter (1966), developed the concept of Locus of Control of Reinforcement (later to be known simply as Locus of Control) along with a questionnaire to operationalize the construct. This questionnaire, known as Rotters Internal-External Locus of Control (I-E), has since been used in a vast number of studies, although only more recently in relation to alcoholism.

Locus of control refers to an individual's generalized expectancies concerning whether or not they have

control or power over what happens to them. The concept may be visualized on a continuum (along which individuals are normally distributed) ranging from internal to external locus of control. The internally orientated person sees himself as master of his fate and in control of his environment while the person at the other end of the continuum is more likely to view himself as the victim of fate and at the mercy of his environment.

Some studies since 1976 have looked at locus of control with relation to dropout from alcohol treatment programmes. O'Leary, Rohsenow and Donovan (1976) failed to find a relationship in their investigation. Later O'Leary, Calsyn, Chaney and Freeman (1977) used both the MMPI and the I-E Scale to make a comparison of dropouts and completers from a programme. Results showed that only the I-E Scale differentiated significantly between groups; it indicated that patients completing the treatment had a more external control orientation than those who failed to complete.

A replication of this study (O'Leary, Rohsenow & Chaney, 1979) which used a slightly different procedure for analysis, also found an internal locus of control related to attrition.

Further studies were not so consistent in their findings. Schofield (1978) found a relationship in the opposite direction while Bowen and Twemlow (1978a) found no relationship. The variety of finds cited lead these authors to conclude that the I-E Scale is not a useful

instrument for use with an alcoholic population to predict dropouts.

In a study by Oziel, Obitz and Keyson (1972) fifty alcoholics were administered both the I-E Scale and a specially constructed scale to "determine perceived locus of control for their drinking behaviour" (p. 957). This second scale was constructed by Keyson and Janda (Note 1) and has since become known as the Drinking Related Internal-External Locus of Control (DRIE). Results of this study suggest that alcoholics perceive themselves as being in control of themselves, and of their drinking.

This DRIE Scale was again used by Donovan and O'Leary (1978). They had noted the deficiencies of the I-E Scale in the area of alcohol research and hoped that the DRIE (designed specifically for this population) would provide a greater degree of predictive power as well as less ambiguous results. It was their intention to investigate the reliability, factor structure, and concurrent, convergent, discriminant and construct validity of the DRIE Scale. They did this by administering the scale to one hundred and twenty men, all of whom were receiving inpatient treatment for alcoholism. Responses to individual items of the DRIE Scale were then subject to item analysis, factor analysis and estimates of reliability. Their results of these analyses suggest that the scale is a relatively sound psychometric instrument.

The results of the present studies indicate that

> the DRIE Scale is a reliable multidimensional measure of alcoholics' specific expectations concerning drinking behaviour. The scale has demonstrated both convergent and discriminant concurrent validity as well as construct validity .... The present findings suggest that a measure such as the DRIE Scale is particularly promising in the prediction of drinking behaviour. (p. 778)

In a later study (Walker, Van Ryn, Frederick, Reynolds and O'Leary, 1980) the DRIE was used to examine the relationship between alcoholic patients' control orientation and dropout from the programme. Their only significant finding suggested that patients who dropout of treatment during the initial phase show a greater external locus of control. They suggest that since no other significant differences were found between groups it may be necessary to combine locus of control ratings with the other component of control orientation proposed by social learning theory, i.e. self-efficacy. Walker et al. (1980) suggest that "an individual could have an internal locus of control, i.e. believe that a certain behaviour will lead to a certain outcome, but be convinced from experience that he cannot successfully execute the behaviour. The resulting low self-efficacy would not be reflected in his [DRIE] score" (p. 876).

2.4 COUNSELLING READINESS SCALE

The Counselling Readiness Scale (CRS) is another scale which has been used with some success in predicting dropouts from treatment programmes. This scale was developed from the Adjective Check List (Gough, 1960) which was to provide a broad measure of personality covering behaviour, self-conceptions, and personal values.

The CRS was developed by Heilbrun and Sullivan (1962) to help identify those patients who will remain in counselling long enough for some benefits to accrue, and those who will dropout early (thus minimizing their chances of benefitting from the contact). A sample of college students, who attended the University Counselling Service, were used in the analysis. From this, two lists of adjectives (one for males and one for females), which were found to be associated either with completing or dropping out of treatment, were established. [Refer Appendix 2]. It is noted that

> For males, those adjectives which are most characteristic of stay clients tend to describe more maladjustive behaviours, whereas drop clients endorsements tend to include adjustive behaviours. From this it can be inferred that those who were least counselling ready (the drops) were the best adjusted and the least in need of counselling and/or were the least able to depict themselves as having adjustment problems (p. 117).

This scale appears more successful in predicting

attrition of male patients. It has the advantages of being short, self-administering and easy to score.

Cartwright, Lloyd and Wicklund (1980) used the CRS in an attempt to predict dropouts from psychotherapy. They combined this scale with ratings made by the staff during the intake interview and found it to be useful for predicting dropouts of both sexes. They suggested that this scale be used in other areas of treatment.

2.5 SUMMARY AND CONCLUSIONS

Baekeland and Lundwall (1975) concluded that there are three groups of interrelated variables that can be used to predict the likelihood of a patient dropping out of treatment. A review of the literature has shown that only two of these three areas have been researched; i.e. intrapsychic factors and therapist factors.

Other studies have used psychometric instruments (the DRIE, CRS and Self-efficacy Questionnaire) with some success in the prediction of dropouts from treatment.

This study will look at some of these variables with relation to dropout:

1) The Counselling Readiness Scale - a clinical rating scale
2) The Drinking Related Locus of Control - a clinical rating scale
3) Staff ratings
4) A Self-efficacy Questionnaire

The first three measures focus on what Baekeland and Lundwall (1975) call intrapsychic factors. The self-efficacy measure is an attempt to quantify the interaction between Baekeland and Lundwall's (1975) intrapsychic factors and environmental factors. It is based on the assumption of a bi-directional interaction between behaviour and the environment and therefore may prove useful for prediction purposes.

2.6 HYPOTHESES

On the basis of the literature reviewed, the following hypotheses are generated:

1. That a population of alcoholics can be classified, at admission, into one of three termination status groups according to their self-efficacy ratings:
   a) Early dropouts - termination within the first two weeks
   b) Late dropouts - after two weeks, but before completing successfully
   c) Completers - discharged satisfactorily

2. That self-efficacy ratings taken at the time of assessment will be useful in distinguishing late dropouts from completers.

3. That DRIE scores and CRS scores will be related to self-efficacy scores, and will also be useful in predicting termination status at both admission and assessment.

4. That clinical ratings made by treatment staff at assessment will be useful in predicting those who will dropout of the programme.

5. That self-efficacy ratings will improve over time for treatment completers.

3. STUDY ONE

3.1 INTRODUCTION

It was necessary to develop a questionnaire to monitor the patients' self-efficacy with relation to their drinking behaviour during treatment. Its format was based on one developed by DiClemente and Prochaska (1981) which was found to be a reliable instrument for establishing subjects' expectations of personal efficacy.

First, a list of items was generated which described various situations likely to be encountered. These situations spanned both a variety of tasks, and various levels of difficulty, so as to satisfy the criteria of magnitude and generality proposed by Bandura (1977).

A pilot study using this questionnaire (Appendix 1) was then undertaken with a view to selecting the most suitable items for use in Study Two - that is, items that accounted for the most variance. The pilot study would also provide a means of determining problems in administration which could then be altered in the revised form.

3.2 SUBJECTS

Inpatients from three Salvation Army treatment programmes for alcoholics situated in Christchurch, Wellington and Auckland were studied. As the majority of these patients are male, only males were included in the sample of one hundred and nineteen subjects. They had an average age of 38 years and all were diagnosed as having 'alcohol

dependence syndrome' using the ICD-9 (World Health Organisation, 1977).

3.3 INSTRUMENTATION

The initial questionnaire (Appendix 1) contained 34 items which were rated by subjects on each of two 5-point Likert scales. On the first scale the subject was required to say how confident he was that he would not drink in that situation (giving a measure of his self-efficacy). The second scale required the subject to assess how tempted he was to drink in each situation (to assess the strength of the cue) (DiClemente & Prochaska, 1981). The Likert scales ranged from 'Not at all' to 'Extremely' and scoring was done by assigning a value to each of the responses made (Table 2).

TABLE 2

SCORING OF SELF-EFFICACY QUESTIONNAIRE

Rating	Score	
	Temptation	Confidence
Not at all	5	1
Not very	4	2
Moderately	3	3
Very	2	4
Extremely	1	5

High scores indicate minimum temptation to drink and extreme confidence that they would not drink, while low scores show extreme temptation and a lack of confidence in the ability to abstain.

3.4 PROCEDURE

The questionnaires were administered to each group of subjects on a Wednesday morning. (Wednesday mornings were selected to minimise the influence of weekend events.) They were administered by staff members of the respective treatment programmes who noted any difficulties patients had in completing them.

3.5 RESULTS

Several questionnaires that were judged to be invalid were omitted from the analysis. These included those where only one response had been given for each statement, or where the patient had ticked the same response for every item. This left one hundred and eight questionnaires in the analysis.

Total 'tempted' and 'confidence' scores were then obtained for each subject and regression analysis was performed (Nie, Hull, Jenkins, Steinbrenner & Bent, 1975). This was in an attempt to get a set of good predictor items, none of which were measuring the same thing. Through doing this, the length of the questionnaire was able to be reduced by twelve items to twenty two items thus shortening administration time. Pearson's correlations (Nie et al., 1975) of total scores with item scores indicated that all correlations were greater than 0.44 for the twenty two items.

The 'tempted' and 'confidence' ratings show a very high degree of association (Pearson's correlation 0.982, $p<0.001$).

3.6 DISCUSSION

The regression analysis indicated that twelve items could be omitted from the questionnaire. A new scale using the remaining twenty two items was devised for use in Study Two.

Given the high correlation between tempted and confidence ratings, and that the primary interest of this thesis is in monitoring self-efficacy (i.e. confidence ratings), the temptation scale could be omitted from the new questionnaire.

As several subjects expressed difficulty in completing the initial questionnaire, modified instructions, including a worked example, were used in the revised form.

4. STUDY TWO

4.1 INTRODUCTION

This study is concerned with predicting dropouts from the Christchurch Bridge, a Salvation Army programme for the treatment of alcoholics. The Bridge is a 26-bed unit (with 20 beds reserved for males) that offers a 10-12 week programme. An outline of the programme is given in Figure 1.

4.2 SUBJECTS

Twenty nine male inpatient admissions to the Christchurch Bridge Programme were studied. (Staffing shortages at the Auckland Bridge Programme prevented their inclusion in Study Two.)

Consecutive admissions (from May to October, 1983) were included provided they met the following criteria:

i) was a voluntary admission - voluntary patients have the right to leave the programme at any time, committed patients, i.e. those referred through the Courts, are legally bound to remain in the programme.

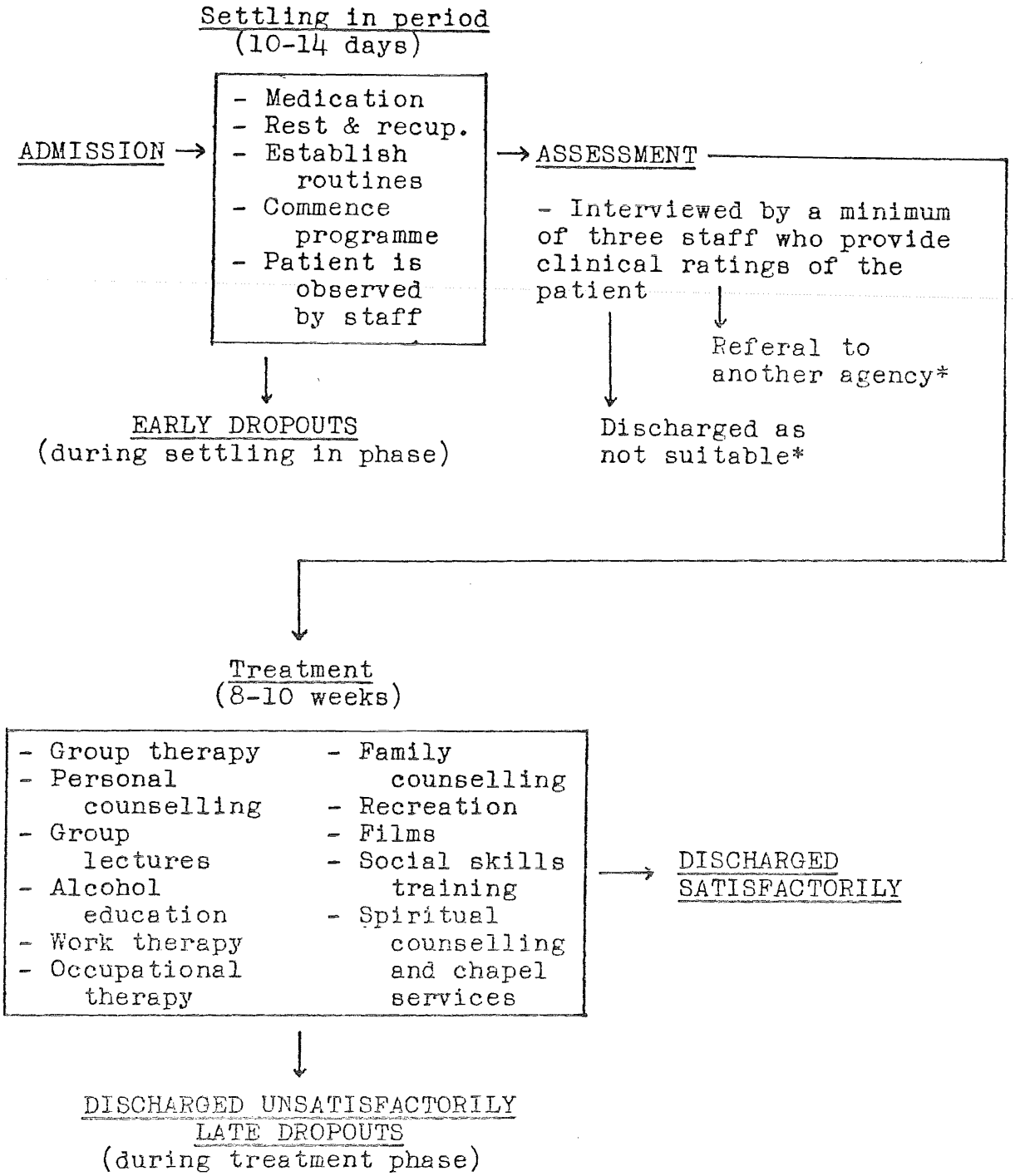
ii) was a 'full' admission - i.e. not admitted purely for detoxification, or for holding prior to being admitted elsewhere.

There was no waiting list for patients during the period of this study.

Demographic variables, obtained from patients' files, are summarised in Tables 3 and 4.

FIGURE 1

DESCRIPTION OF TREATMENT PROGRAMME



*These patients were not included in the study.

TABLE 3

AVERAGE AGE, EDUCATION AND NUMBER OF PREVIOUS TREATMENTS

Variable	Mean	Standard Deviation
AGE - IN YEARS	36.00	12.18
EDUCATION - YEARS AT SECONDARY SCHOOL	2.00	1.60
NUMBER OF PREVIOUS ADMISSIONS TO TREATMENT PROGRAMMES	0.66	1.07

TABLE 4

DETAILS OF THE POPULATIONS' RACE,

OCCUPATION AND MARITAL STATUS

Variable	Percentages in each group			
RACE	Maori 10.3	Other 89.7		
OCCUPATION[a]	Professional 6.9	Skilled 10.3	Semi-skilled 20.7	Unskilled 62.1
MARITAL STATUS	Single 34.5	Married 17.2	Separated 20.7	Divorced 27.6

[a]Professional: Full time training at a tertiary institution. Also executive and managerial.

Skilled: Part time training at a tertiary institution as required by an apprenticeship.

Semiskilled: Apprenticeship - but all training on the job.

Unskilled: No training required.

(Smith, Visser & Warrington, 1980)

All subjects in this study were non-Korsakoff alcoholics officially diagnosed as having 'alcohol dependence syndrome' using the ICD-9 (World Health Organisation, 1977). They were all detoxed in another unit prior to admission.

4.3 INSTRUMENTATION

Self-Efficacy Questionnaire

This questionnaire, as described in Study One, is designed to measure Bandura's concept of self-efficacy. It has twenty two items for each of which the patient is required to rate how confident he is that he will not drink in that situation (Appendix 3). The rating, as in Study One, is done on a 5-point Likert scale ranging from 'Not at all confident' (which receives a score of 1) through to 'Extremely confident' (which receives a score of 5).

Drinking Related Locus of Control

The DRIE (Appendix 4) consists of nineteen items in a forced-choice format pairing an alternative indicative of internal locus of control with an alternative indicative of external locus of control (Keyson & Janda, Note 1). Subjects are asked to choose the alternative more closely representing their beliefs or behaviour.

The questionnaire is scored in the external direction with higher scores indicating a lack of control over life events, while a lower score indicates that the individual feels they are in control of their future.

Counselling Readiness Scale

Separate male and female scales of the CRS have been developed (Heilbrun & Sullivan, 1962). The scale for males consists of twenty four adjectives which have been associated with those who are ready for counselling (i.e. those who are likely to complete the programme), and twenty eight which are associated with dropouts (Appendix 2).

The patient is presented with the list of adjectives and is then asked to indicate which of them he feels are self-descriptive. The final raw score is represented by the sum of the 'completer' adjectives that have been endorsed, minus the sum of the 'dropout' adjectives that were selected. This raw score is then converted to a 'T' score using a table which takes into account the total number of items endorsed.

4.4 PROCEDURE

After each prospective subject had been invited to participate in the study, its purpose was explained and assurance given that their participation was independent of their treatment programme, and that all information from the study was strictly confidential.

Questionnaires were administered at admission, at assessment (10 to 14 days later), and then weekly until discharge (Table 5).

TABLE 5

TIME-TABLE OF QUESTIONNAIRES ADMINISTERED

Time	Questionnaires Administered
ADMISSION	- Self-efficacy Questionnaire - Drinking Related Locus of Control (DRIE) - Counselling Readiness Scale (CRS)
ASSESSMENT	- Self-efficacy Questionnaire - DRIE - CRS
WEEKLY (on Wednesday) FROM ASSESSMENT UNTIL TERMINATION	- Self-efficacy Questionnaire

These questionnaires were distributed by staff responsible for admission, assessment and a Wednesday morning lecture, respectively. (Wednesday mornings were selected, as in Study One, to minimise any influence that may be caused by weekend events.) Scoring was carried out by the author.

Clinical ratings (made by treatment staff at assessment) and termination status was recorded from the patient's files.

TABLE 6

A LIST OF ADDITIONAL INFORMATION

COLLECTED FOR EACH SUBJECT

AT ASSESSMENT

i) A rating of patients' acceptance of their problem (1-7).

ii) A rating of their motivation to treatment (1-7).

iii) A rating of their degree of external support (1-7).

iv) A rating of their degree of honesty in the interview (1-7).

v) A rating of their degree of evasion during the interview (1-7).

/Note: All ratings were made by a minimum of three treatment staff./

AT TERMINATION

Reason for terminating:

i) Early dropouts - terminating within the first two weeks for one of the following reasons:

a) left against advice
b) left without notice
c) terminated for drinking
d) terminated for non-co-operation

ii) Late dropouts - as above, but occurring after the first two weeks.

iii) Completers - discharged satisfactorily.

4.5 RESULTS

In Study Two three questionnaires were administered at admission and assessment (Table 7) with a view to predicting termination status (Table 8).

TABLE 7

MEANS AND STANDARD DEVIATIONS OF SCORES

Questionnaire	Administration	Mean Score	Standard Deviation
Self-Efficacy	Admission	71.6	18.1
Self-efficacy	Assessment	81.3	16.0
DRIE	Admission	8.6	4.5
DRIE	Assessment	7.5	4.1
CRS	Admission	59.7	8.9
CRS	Assessment	57.7	8.8

TABLE 8

TERMINATION GROUPS

Group	Termination Status	Number of Patients in Group
1	Early dropouts	8
2	Late dropouts	4
3	Completers	17

The first hypothesis, presented at the end of the Literature Review, stated that self-efficacy ratings collected at assessment would be useful in classifying the patients into one of three termination status groups: early dropouts, late dropouts and completers.

Total self-efficacy scores from admission were not useful in predicting the termination status of the patients, i.e. the three termination groups did not differ enough in their total self-efficacy scores to allow for discrimination on this basis. This result was found by using discriminant analysis[a] (Nie et al., 1975) in which the self-efficacy scores did not have a partial F ratio sufficient for their inclusion ($F(2,26)=0.488$) and so no discriminant function could be derived from this information.

Analysis using the individual item scores of the questionnaire showed these were useful in classifying 89% of the patients into their correct termination groups. The discriminant analysis (Nie et al., 1975) used eleven of the twenty-two items in its resulting functions (Table 9).

Three patients (11%) were incorrectly classified and were placed in the completers group rather than in the dropout group to which they belonged.

[a]This analysis sets the minimum partial F ratio for entry into the analysis at 1.0. After the variables are entered they must still maintain a partial F ratio of at least 1.0 at each of the subsequent steps, or else they are removed from the analysis. (These requirements have been maintained for all such analyses carried out in this study.)

TABLE 9

ITEMS USED IN FUNCTIONS DERIVED

FROM ADMISSION SELF-EFFICACY SCORES

Item	Item Content
3	When I see someone drinking and enjoying it.
4	When I have spoken about myself in a group.
6	When I am in control.
7	When I am tense.
9	When I am forced to do something in the programme that I would prefer not to do.
14	When I am feeling shy.
17	When I am grieving.
19	When I feel rejected.
20	When I have a tough session with my counsellor.
21	When I want to get at someone.
22	When I am having problems with my girl friend/wife.

Two canonical discriminant functions were derived (Table 10). Function one accounted for 51.8% of the variance ($p<0.05$; Wilks' Lambda<0.20), while function two accounted for the remaining 48.2% ($p<0.05$; Wilks' Lambda < 0.40).

By calculating the values of each of the functions at the group means (Table 11) it is clear that function one discriminates best between early dropouts and late drop-outs while function two discriminates best between drop-outs and completers.

TABLE 10

DISCRIMINANT ANALYSIS OF SELF-EFFICACY ITEMS AT ADMISSION

				Univariate Statistics		
Item	Function One	Function Two	Order Entered	Wilks' Lambda	F Ratio	Sig.
3	0.97	0.43	5	0.82	2.95	0.07
4	-0.88	-1.08	3	0.95	0.75	0.48
6	0.48	0.63	2	0.81	3.13	0.06
7	-0.19	0.86	4	0.89	1.62	0.22
9	0.54	-0.60	1	0.79	3.48	0.05
14	-0.31	-0.76	6	0.93	1.05	0.36
17	0.91	-0.64	9	0.93	0.98	0.39
19	-1.34	0.14	10	0.96	0.59	0.56
20	-0.32	1.10	7	0.99	0.02	0.98
21	0.83	-0.59	8	0.97	0.41	0.67
22	0.73	0.53	11	0.96	0.62	0.55

TABLE 11

CANONICAL DISCRIMINANT FUNCTIONS

EVALUATED AT GROUP MEANS

Groups	Function One	Function Two
Early dropouts	1.54	-1.15
Late dropouts	-2.37	-1.79
Completers	-0.17	0.96

Although total self-efficacy scores were not useful in predicting dropout, item scores were, thus lending support to Hypothesis 1.

The second hypothesis holds that self-efficacy ratings made at the time of assessment will be useful in distinguishing between late dropouts and completers.

Again total scores were not useful in predicting the termination status of patients. In the discriminant analysis (Nie et al., 1975) these scores did not have a partial F ratio sufficient for their inclusion ($F(1,19)=0.001$) and so no discriminant function could be derived.

As in hypothesis one, analysis using the individual items was more successful. The function that was derived involved ten of the items (Table 12) and was able to

TABLE 12

ITEMS USED IN THE FUNCTION DERIVED FROM ASSESSMENT SELF-EFFICACY SCORES

Item	Item Content
2	When I am happy.
4	When I have spoken about myself in group.
5	When I am missing drinking and all that goes with it.
6	When I am in control.
7	When I am tense.
12	When I feel like celebrating about something.
14	When I am feeling shy.
15	When I am successful.
18	When I need to sleep.
21	When I want to get at someone.

discriminant all of the patients into their correct termination groups, i.e. late dropouts and completers. The canonical discriminant function derived (Table 13) accounted for 100% of the variance ($p<0.05$; Wilks' Lambda <0.20). These findings are in support of Hypothesis 2.

TABLE 13

DISCRIMINANT ANALYSIS OF SELF-EFFICACY ITEMS AT ASSESSMENT

			Univariate Statistics		
Item	Function	Order Entered	Wilks' Lambda	F Ratio	Sig.
2	1.50	6	0.92	1.73	0.20
4	2.25	4	0.93	1.51	0.23
5	1.81	7	0.95	0.99	0.33
6	1.34	9	0.98	0.37	0.55
7	2.88	5	0.80	4.77	0.04
12	-1.50	8	0.89	2.41	0.14
14	-1.07	2	0.99	0.01	0.94
15	-0.81	10	0.97	0.55	0.47
18	-1.52	1	0.97	0.53	0.48
21	-4.05	3	0.99	0.02	0.90

The high discriminative ability of the function derived from the self-efficacy items at assessment has been shown, therefore a further analysis was performed to compare this function with the discriminative ability of self-efficacy items at admission where early dropouts were omitted. If this provided an equally useful discriminant function, then for future predictions of termination status, only admission information need be collected. This may be used initially to predict which of the three termination groups the patient would belong to, and then later (using a different function) to confirm the accuracy of predictions of late dropouts and completers.

The function that was derived involved sixteen of the items (Table 14) and was able to classify all of the patients into their correct termination groups. The function derived from the discriminant analysis (Nie et al., 1975) was highly significant ($p<0.01$; Wilks' Lambda <0.008) and accounted for 100% of the variance. A summary of the function is given in Table 15.

TABLE 14

ITEMS USED IN THE FUNCTION DERIVED

FROM ADMISSION SELF-EFFICACY SCORES

WITHOUT EARLY DROPOUTS

Item	Item Content
1	When I am angry about something.
2	When I am happy.
3	When I see someone drinking and enjoying it.
4	When I have spoken about myself in group.
6	When I am in control.
8	When another patient in the programme is drinking.
10	When I desire the taste of alcohol.
11	When films or lectures that we have really hit home to me.
12	When I feel like celebrating about something.
15	When I am successful.
16	When I am feeling guilty.
17	When I am grieving.
18	When I need to sleep.
19	When I feel rejected.
20	When I have a tough session with my counsellor.
21	When I want to get at someone.

TABLE 15

DISCRIMINANT ANALYSIS OF SELF-EFFICACY ITEMS AT ADMISSION OMITTING EARLY DROPOUTS

Item	Function	Order Entered	Univariate Statistics		
			Wilks' Lambda	F Ratio	Sig.
1	8.71	1	0.82	4.02	0.06
2	-3.55	6	0.98	0.36	0.58
3	14.13	2	0.86	2.99	0.10
4	-18.86	3	0.95	1.06	0.32
6	-18.70	4	0.84	3.68	0.07
8	15.39	11	0.97	0.59	0.45
10	2.48	16	0.88	2.69	0.12
11	-7.41	5	0.99	0.11	0.75
12	-30.48	7	0.99	0.02	0.89
15	5.41	9	0.99	0.33	0.86
16	30.47	8	0.96	0.76	0.39
17	7.89	13	0.94	1.28	0.27
18	6.11	12	0.99	0.03	0.85
19	-6.43	14	0.98	0.43	0.52
21	7.45	10	0.98	0.37	0.55
22	-9.33	15	0.94	1.09	0.31

With a view to further improving the predictive powers of the discriminant function, an analysis was performed combining self-efficacy scores at admission and assessment. Early dropouts were omitted from the analysis as there was no assessment data available for them.

Results showed that fifteen items were useful in discriminating between late dropouts and completers and were therefore used in the resulting function (Table 16).

TABLE 16

ITEMS USED IN THE FUNCTION DERIVED FROM SELF-EFFICACY SCORES AT ADMISSION AND ASSESSMENT

Item	Test Administration[a]	Item Content
1	Ad, As	When I am angry about something.
2	Ad, As	When I am happy.
3	As	When I see someone drinking and enjoying it.
4	Ad	When I have spoken about myself in group.
6	As	When I am in control.
8	Ad, As	When another patient in the programme is drinking.
13	Ad	When I am relating to a person of the opposite sex.
14	As	When I am feeling shy.
15	As	When I am successful.
20	As	When I have a tough session with my counsellor.
21	Ad	When I want to get at someone.
22	As	When I am having problems with my girl friend/wife

[a] 'Ad' refers to self-efficacy at admission;
'As' refers to self-efficacy at assessment.

The function was able to predict with 100% accuracy and was highly significant ($p<0.01$; Wilks' Lambda<0.002) (Table 17).

TABLE 17

DISCRIMINANT ANALYSIS OF SELF-EFFICACY ITEMS AT BOTH ADMISSION AND ASSESSMENT

Item[a]	Function	Order Entered	Univariate Analysis Wilks' Lambda	F Ratio	Sig.
1 Ad	7.30	3	0.82	4.02	0.06
2 Ad	6.10	8	0.98	4.36	0.56
4 Ad	-17.48	4	0.95	1.06	0.32
8 Ad	14.23	9	0.97	0.59	0.45
13 Ad	28,99	6	0.99	0.06	0.80
21 Ad	1.71	15	0.98	0.37	0.55
1 As	4.96	13	0.95	0.95	0.34
2 As	2.18	12	0.92	1.73	0.20
3 As	23.52	1	0.68	8.88	0.01
6 As	4.01	11	0.98	0.37	0.55
8 As	-1.73	14	0.95	1.08	0.31
14 As	-9.50	2	0.99	0.01	0.94
15 As	-28.25	5	0.97	0.55	0.47
20 As	8.05	10	0.91	1.81	0.19
22 As	-25.65	7	0.99	0.01	0.90

The third hypothesis states that: (a) DRIE scores, and CRS scores will be related to self-efficacy scores, and (b) that these scores will also be useful in predicting termination status at both admission and assessment.

[a] 'Ad' refers to self-efficacy at admission; 'As' refers to self-efficacy at assessment.

With regard to part (a), Table 18 indicates firstly, that self-efficacy scores correlate more highly with the DRIE scores than with the CRS scores, and, secondly, that these correlations are greater at assessment than at admission. These results lend partial support to Hypothesis Three, part (a).

It may also be noted that the correlations between the DRIE scores and CRS scores at admission and at assessment are high (DRIE, 0.74; CRS, 0.81 ($p<0.005$)), indicating good test-retest reliability.

TABLE 18

PEARSON'S CORRELATIONS BETWEEN TEST SCORES AT ADMISSION AND ASSESSMENT

	SELF-EFFICACY (Assessment)	DRIE (Admission)	DRIE (Assessment)	CRS (Admission)	CRS (Assessment)
SELF-EFFICACY (Admission)	0.63***	-0.46**	-0.30	-0.17	-0.19
SELF-EFFICACY (Assessment)		-0.57**	-0.65***	-0.52*	-0.48*
DRIE (Admission)			0.74***	0.14	0.25
DRIE (Assessment)				0.43*	0.35
CRS (Admission)					0.81***

*p 0.05; **p 0.01; ***p 0.005

The second part of Hypothesis Three, concerned with predicting termination status using the DRIE and CRS scores, was investigated using discriminant analysis (Nie et al.,

1975). Neither of these scores were useful in this regard.

Analysis of the DRIE at admission revealed a non significant function ($p>0.12$; Wilks' Lambda<0.90), while the CRS scores were not significant ($p>0.94$; $F(2,26)=0.05$) and therefore no function was derived from them. At assessment, neither the DRIE scores ($p>0.97$; $F(1,19)=0.01$) nor the CRS scores ($p>0.87$; $F(1,19)=0.02$) were significant and so no functions were derived from either measure.

Self-efficacy and DRIE scores were then combined. This was done to substantiate the claim by Walker et al. (1980) that these measures, being the two components of control orientation proposed by social learning theory, would be useful in predicting dropout. This claim was not substantiated. Results from the admission data produced a non significant function ($p>0.12$; Wilks' Lambda<0.90) in which only the DRIE scores had been included (the self-efficacy scores did not have a partial F ratio sufficient for their inclusion, i.e. $F<1.0$).

The same analysis was carried out on these scores at assessment with similar results. In this instance neither of the two variables had sufficient partial F ratios to qualify for inclusion, therefore no function was derived. These results show no support for Hypothesis Three, part (b).

Hypothesis Four holds that ratings made by treatment staff at assessment will be useful in predicting those who will dropout of the programme. This was not substantiated by the results. The discriminant function derived was not

significant ($p>0.09$, Wilks' Lambda<0.80) and included only two of the five ratings available (Table 19).

TABLE 19

UNIVARIATE STATISTICS FOR STAFF RATINGS

Item	F Ratio	Wilks' Lambda
1	0.13	0.99
2*	1.82	0.91
3*	1.49	0.93
4	0.04	0.99
5	0.04	0.99

* These two items were included in the analysis.

The final hypothesis, number Five, states that self-efficacy ratings of completers will improve over time. Results did support this hypothesis (Table 20), with fifteen of the seventeen completers (88%) showing increases of between six and forty points. Table 20 also shows the individuality of the ratings with one score ranging from forty to sixty nine, while another went from ninety six to one hundred and ten. This individuality is further illustrated by both the 'range of ratings' and the 'standard deviations' given in the last lines of the table.

TABLE 20

WEEKLY SELF-EFFICACY RATINGS OF COMPLETERS

Patient	Assess-ment	Weeks 1	2	3	4	5	6	7	8	Change in Ratings
1	69	*	65	68	*	68	81	82	*	+13
2	58	*	74	67	70	78	87	71	*	+13
3	74	*	87	96	100	101	106	98	103	+29
4	96	90	105	*	109	110	110	110	*	+14
5	51	50	38	60	46	49	54	65	*	+14
6	72	*	104	107	109	107	*	*	*	+35
7	82	95	108	96	99	99	*	*	*	+17
8	55	*	55	53	45	49	44	*	*	-11
9	56	59	59	70	55	65	79	77	*	+21
10	73	71	68	58	68	69	67	67	71	- 2
11	40	49	56	59	64	54	66	61	69	+29
12	70	65	75	76	68	81	86	86	*	+16
13	72	73	70	76	80	80	79	82	82	+10
14	70	*	106	109	110	110	110	110	*	+40
15	62	68	86	89	81	95	83	85	*	+23
16	61	71	72	75	61	68	55	67	*	+ 6
17	73	86	94	105	99	105	101	102	100	+27
Range of Ratings	56	41	71	56	65	61	66	49	34	-
Average	66.7	70.6	77.8	79.0	79.0	81.6	80.5	83.0	85.0	-
Standard Deviation	12.5	14.4	20.2	18.2	21.9	20.8	19.9	15.9	14.2	-

* The patient was not present at the time of administration.

4.6 DISCUSSION

The primary purpose of this study was to find a method of predicting those patients who would drop out of an inpatient alcohol treatment programme either within the first two weeks (early dropouts), or within the following eight to ten weeks (late dropouts). Several methods of assessment that had previously proved useful in this regard were employed: clinical ratings (Baekeland & Lundwall, 1975), a 'locus of control scale' (Oziel et al., 1972), a 'counselling readiness scale' (Heilbrun & Sullivan, 1962), and a 'self-efficacy questionnaire' (DiClemente & Prochaska, 1981). Self-efficacy ratings had also proved useful in demonstrating changes that occur in patients during the time they are in treatment (Bandura, 1982). Weekly measures of self-efficacy were taken so that any such changes could be noted.

Total self-efficacy scores were not useful in predicting dropouts. A possible explanation for this lies in the construction of the test. With each item being rated from one to five on a Likert scale, the possible scores range from twenty two to one hundred and ten. Not only does this lead to a large standard deviation (as was shown), but it also means that although two patients may obtain the same score, their individual item profiles may be very different. For example, a score of sixty six may be obtained by scoring an average rating of three on all items, or by scoring high on half the items and low on the other half, thus producing very different profiles. In this example, the patient scoring three on each item is

indicating that although they are not extremely confident that they would not drink in any of the given situations, they are not completely lacking in confidence either. A patient scoring in the high-low fashion, although extremely confident in some situations, has indicated eleven situations in which he feels he could easily drink. This example also serves to explain why the analysis of individual item scores was useful.

The first analysis of item scores showed that eleven items from the self-efficacy questionnaire which was completed at admission were used in the functions (F1 and F2) that predicted whether patients would dropout early, late, or complete the programme. A further analysis of these original data, performed at the time of assessment (10-14 days later), indicated that sixteen of the items could be used in a different function (F3) to confirm the termination status of those patients remaining in the programme at assessment. In practical terms this would mean that only one twenty-item questionnaire (items 5 and 13 were not included in any of the three functions) need be administered to the patients at the time of admission. These data would then be used twice to predict termination status; firstly at admission, and then later at assessment.

Greater predictive ability than can be obtained by F3, could be gained at assessment by administering a further nine-item questionnaire at this time and combining these data with six of the items which were rated at admission. A function (F4) using these two sets of items showed a greater ability to discriminate late dropouts

from completers than did F3 (the significance of this function was higher and Wilks' Lambda was smaller).

Correlations between the three questionnaires used in the study indicated that a person with a high total self-efficacy score would score low on both the DRIE and CRS. This suggests that those with high self-efficacy had an internal locus of control and described themselves in a positive way (endorsing 'drop' adjectives in the CRS). This relationship between self-efficacy and DRIE does not appear to support the proposal made by Walker et al. (1980) who suggested that an individual could have an internal locus of control (a low score on the DRIE), but know from experience that he cannot successfully execute a certain behaviour. This inability would be reflected in a low self-efficacy score.

If we assume that self-efficacy increases over time (Bandura, 1977) in those patients who complete treatment, and therefore that high self-efficacy is associated with persistence in treatment, then patients who describe themselves in a positive way on the CRS are the same ones who are producing favourable self-efficacy scores. Alcoholics' scores on the CRS would indicate that, unlike college students, those adjectives that are most characteristic of 'stay' clients tend to describe better adjusted, rather than maladjusted, behaviours. However, this is a tentative finding that requires further investigation.

Discriminant analysis of the DRIE and CRS scores indicated that neither questionnaire was useful in pre-

dicting patient's termination status. On the DRIE most subjects obtained scores in the mid-range, indicating neither an internal nor external orientation. The standard deviation of the CRS scores indicates that patients were also scoring in a similar fashion, i.e. within a restricted range, thus not enabling significant discriminations to be made between dropouts and completers.

These findings fail to support the claims made by Donovan and O'Leary (1978), who suggested that the DRIE may be useful in predicting alcoholic's future behaviour, and by Cartwright et al. (1980) who suggested that the CRS may be useful in predicting dropouts in other areas of treatment (they had investigated dropout from psychotherapy).

Further results indicated that the clinical ratings made by staff were not useful in discrimination between patients who would dropout and those who would not. A review of these indicated that the rating recorded for each item (calculated as an average of the ratings made by three or more of the staff) showed very little variation across patients. This resulted in the ratings having a low discriminative ability. This result would suggest that the staff was unable to make subtle differentiations between patients on the variables that were rated, or that by averaging several staff members' ratings, the subtle differences were lost.

Self-efficacy ratings of completers were found to increase over time. This increase varied substantially

across subjects demonstrating a large degree of individuality (as noted in the results). These results suggest that increased self-efficacy scores may decrease the probability of dropout; this is an interesting facet of this study which requires further direct experimental investigation. This result does, however, substantiate Bandura's (1977) claim concerning the change in self-efficacy ratings during treatment, and suggests that one or more components of the treatment programme are contributing to this change.

Overall, the results from this study of prediction of dropout have indicated that the self-efficacy measure used was a superior predictor of termination when compared with clinical ratings and the DRIE and CRS. The present results are applicable only to the population attending the treatment programme under study. Given this limitation in the present data, and the small numbers of subjects in the experimental population, the usefulness of these functions in a practical sense is limited.

Before valid predictions could be made using data from the self-efficacy questionnaire, further analysis of the psychometric properties of the questionnaire would need to be determined, i.e. internal reliability, external reliability, and factor structure (to see which particular factors are present in the functions that are derived). If the questionnaire was being used in another type of treatment programme valid items related to the situations likely to be encountered would need to be derived first. Then, in an analysis, subject numbers would need to be sufficient to satisfy statistical criteria.

If such a means of prediction were to be used in a programme, it would be necessary to run checks on the functions periodically to ensure they remain significant. This may be necessary for two reasons; firstly the characteristics of the population attending the programme may alter over time; and, secondly, any changes made to the programme in an attempt to prevent high risk patients from dropping out may affect the predictive ability of the functions.

In conclusion, it appears self-efficacy ratings are useful in the prediction of dropouts from an alcohol treatment programme, and may be useful in other programmes. Also that these ratings show a usefulness in demonstrating changes that occur in patients during their treatment.

APPENDIX 1

SELF-EFFICACY QUESTIONNAIRE ITEMS

FOR STUDY ONE

1. When I am bored and have nothing to do.
2. When I am angry with someone close to me.
3. When I have made an appointment with my counsellor.
4. When I feel frustrated about events in my life.
5. When I am angry about something.
6. When I am happy.
7. When things are just not going the way I want.
8. When there are arguments and conflicts.
9. When I see someone drinking and enjoying it.
10. When I have spoken about myself in a group.
11. When I am missing drinking and all that goes with it.
12. When I am in control.
13. When I am extremely depressed.
14. When I am tense.
15. When another patient in the programme is drinking.
16. When I am relaxed.
17. When I am forced to do something in the programme that I would prefer not to do.
18. When I desire the taste of alcohol.
19. When films or lectures that we have really hit home to me.
20. When I feel like celebrating about something.
21. When I want to forget something.
22. When I am relating to a person of the opposite sex.
23. When I am feeling shy.
24. When I would like some leave from the Bridge and it is not due to me.

APPENDIX 1 (Cont.)

SELF-EFFICACY QUESTIONNAIRE ITEMS

FOR STUDY ONE

25. When I feel inadequate and inferior.
26. When I am feeling resentful.
27. When I am successful.
28. When I am feeling guilty.
29. When I am grieving.
30. When I need to sleep.
31. When I feel rejected.
32. When I have a tough session with my counsellor.
33. When I want to get at someone.
34. When I am having problems with my girl friend/wife.

APPENDIX 2

ADJECTIVES CHARACTERIZING MALE CLIENTS WHO TERMINATE PREMATURELY AND THOSE WHO REMAIN IN COUNSELLING

STAY	DROP
Awkward	Active
Cautious	Adventurous
Cold	Affectionate
Commonplace	Ambitious
Complicated	Boastful
Dull	Capable
Fussy	Clever
Inhibited	Confident
Meek	Courageous
Moderate	Determined
Peculiar	Egotistical
Quiet	Emotional
Rigid	Energetic
Self-seeking	Enthusiastic
Sensitive	Headstrong
Shy	Humorous
Silent	Initiative
Slow	Jolly
Soft-hearted	Original
Spineless	Robust
Submissive	Sociable
Timid	Spontaneous
Unrealistic	Strong
Withdrawn	Temperamental
	Tough
	Uninhibited
	Witty

APPENDIX 3

SELF-EFFICACY QUESTIONNAIRE ITEMS

FOR STUDY TWO

1. When I am angry about something.
2. When I am happy.
3. When I see someone drinking and enjoying it.
4. When I have spoken about myself in group.
5. When I am missing drinking and all that goes with it.
6. When I am in control.
7. When I am tense.
8. When another patient in the programme is drinking.
9. When I am having problems with my girl friend/wife.
10. When I desire the taste of alcohol.
11. When films or lectures that we have really hit home to me.
12. When I feel like celebrating about something.
13. When I am relating to a person of the opposite sex.
14. When I am feeling shy.
15. When I am successful.
16. When I am feeling guilty.
17. When I am grieving.
18. When I need to sleep.
19. When I feel rejected.
20. When I have a tough session with my counsellor.
21. When I want to get at someone.
22. When I am forced to do something in the programme that I would prefer not to do.

APPENDIX 4

DRIE

1. a) I feel so helpless in some situations that I need a drink.

   b) Abstinence is just a matter of deciding that I no longer want to drink.

2. a) I have the strength to withstand pressures at work.

   b) Trouble at work or home drives me to drink.

3. a) Without the right breaks one cannot stay sober.

   b) Alcoholics who are not successful in curbing their drinking often have not taken advantage of help that is available.

4. a) There is no such thing as an irrisistible temptation to drink.

   b) Many times there are circumstances that force you to drink.

5. a) I get so upset over small arguments that they cause me to drink.

   b) I can usually handle arguments without taking a drink.

6. a) Successfully licking alcoholism is a matter of hard work, luck has little to do with it.

   b) Staying sober depends mainly on things going right for you.

7. a) When I see a bottle I cannot resist taking a drink.

   b) It is no more difficult for me to resist drinking when I am near a bottle than when I am not.

8. a) The average person has an influence on whether he drinks or not.

   b) Often times other people drive one to drink.

APPENDIX 4 (Cont.)

DRIE

9. a) When I am at a party where others are drinking I can avoid taking a drink.

   b) It is impossible for me to resist drinking if I am at a party where others are drinking.

10. a) I feel powerless to prevent myself from drinking when I am anxious or unhappy.

    b) If I really wanted to, I could stop drinking.

11. a) It is easy for me to have a good time when I am sober.

    b) I cannot feel good unless I am drinking.

12. a) As far as drinking is concerned, most of us are victims of forces we can neither understand nor control.

    b) By taking an active part in our treatment programme we can control our drinking.

13. a) I have control over my drinking behaviour.

    b) I feel completely helpless when it comes to resisting a drink.

14. a) If someone offers me a drink, I cannot refuse him.

    b) I have the strength to refuse a drink.

15. a) Sometimes I cannot understand how people control their drinking.

    b) There is a direct connection between how hard people try and how successful they are in stopping their drinking.

16. a) I can overcome my urge to drink.

    b) Once I start to drink I can't stop.

17. a) Drink is not necessary in order to solve my problem.

    b) I just cannot handle my problem unless I take a drink first.

APPENDIX 4 (Cont.)

DRIE

18. a) Most of the time I can not understand why I continue drinking.

    b) In the long run, I am responsible for my drinking problem.

19. a) Drinking is my favourite form of entertainment.

    b) It would not bother me if I could never have another drink.

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